

Neurogen Brain Balancing: A Novel Passive, Non-Invasive Neurobiomodulation Modality for Brain Health

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Abstract

Neurogen Brain Balancing (NGBB) is an innovative, non-invasive neurobiomodulation technology designed to optimize brainwave function and restore neurological balance. Unlike conventional neurofeedback, which requires active client participation, NGBB delivers therapeutic benefits passively through low-intensity pulse transcranial electrical signaling (LIP-tES) and EEG-guided protocols. This modality has demonstrated promising clinical outcomes in managing post-traumatic stress disorder (PTSD), traumatic brain injury (TBI), anxiety, depression, attention-deficit/hyperactivity disorder (ADHD), insomnia, chronic pain, and neurodegenerative conditions. An observational study of 80 veterans who completed four weekly NGBB sessions found that 80% reported improvements in their conditions. The most commonly ameliorated symptoms included PTSD, anxiety, depression, sleep disturbances, chronic pain, cognitive dysfunction, and brain fog. NGBB's passive nature makes it particularly suitable for individuals who may struggle with modalities requiring active participation, such as psychotherapy and traditional neurofeedback, due to cognitive overload, trauma, or attentional impairments. Additionally, its minimal side effect profile positions it as a compelling alternative to pharmaceuticals and other invasive interventions. This paper provides an in-depth exploration of neurobiomodulation, reviews clinical case studies, and examines emerging data supporting NGBB's efficacy. By leveraging the brain's inherent neuroplasticity, NGBB offers a scalable, non-invasive solution for neurological rehabilitation, with potential applications across diverse clinical populations. Continued research, including randomized controlled trials and biomarker-driven validation, will further elucidate its therapeutic potential and

optimize treatment protocols.

Keywords

Chronic Pain, EEG, Low-Intensity Pulse Transcranial Electrical Signaling, Mental Health, Neurobiomodulation, PTSD, Traumatic Brain Injury, Veterans

1. Introduction

Neurobiomodulation is a fast-evolving field that harnesses low-intensity electrical impulses to regulate and restore neuronal activity. It targets maladaptive brain-wave patterns, supporting neuroplasticity—the brain’s ability to reorganize itself through new neural pathways. That is, neuroplasticity is the brain and nervous system’s ability to change and “rewire” itself—*i.e.*, to regenerate brain cells and to modify synaptic connectivity between neurons as well as connections within and between brain regions [1]. Neuroplasticity, also known as neural or brain plasticity, refers to the nervous system’s capacity to modify its activity in response to intrinsic or extrinsic stimuli by reorganizing its structure, functions, or connections. This adaptability is fundamental for learning, memory, and recovery from brain injuries such as stroke or traumatic brain injury [2]. Neuroplasticity encompasses various mechanisms, including synaptic plasticity, neurogenesis, and functional reorganization, which collectively enable the brain to adjust and adapt throughout an individual’s life [3].

Research indicates that neuroplasticity is not limited to developmental stages but continues into adulthood, allowing for ongoing adaptation and learning [4]. However, the extent and nature of neuroplastic changes can vary with age and individual experiences [5].

Understanding and harnessing neuroplasticity have significant implications for developing therapeutic strategies aimed at enhancing cognitive function and facilitating recovery from neurological disorders. Interventions such as cognitive training, physical exercise, and certain pharmacological agents are being explored to promote beneficial neuroplastic changes [6].

Neurogen Brain Balancing (NGBB; previously called Neurogen High Performance Neurofeedback or Neurogen HPN [N-HPN]) specifically integrates low-intensity pulse transcranial electrical signaling (LIP-tES) and real-time EEG data to identify dysfunctional brainwave activity and apply corrective signals [7]. Its underlying mechanism promotes brain rebalancing, thereby facilitating healing and optimizing its functioning. The signal is transmitted through three small leads (*i.e.*, ground, active, and reference leads), which “are placed at up to 19 specific locations on the head and neck that correlate to specific symptoms” (Figure 1) [8]. These leads read the client’s brainwaves and record the signal in a computer and EEG processor. sending the resulting electronic signals to a computer and a specialized EEG processor. The leads also generate electrical stimulation feedback

back to the brain using a low power feedback frequency (this 3 picowatt micro current signal is a fraction of a cell phone signal) [8]. If there is a normal beta brainwave, no stimulation is generated. However, abnormal brainwaves will generate a feedback pulse 1 Hz higher to re-calibrate it into the normal range. The objective is a balanced brainwave state that enables the brain and nervous system to learn to regulate itself and modify unhealthy patterns by promoting the formation of new neural pathways [8].

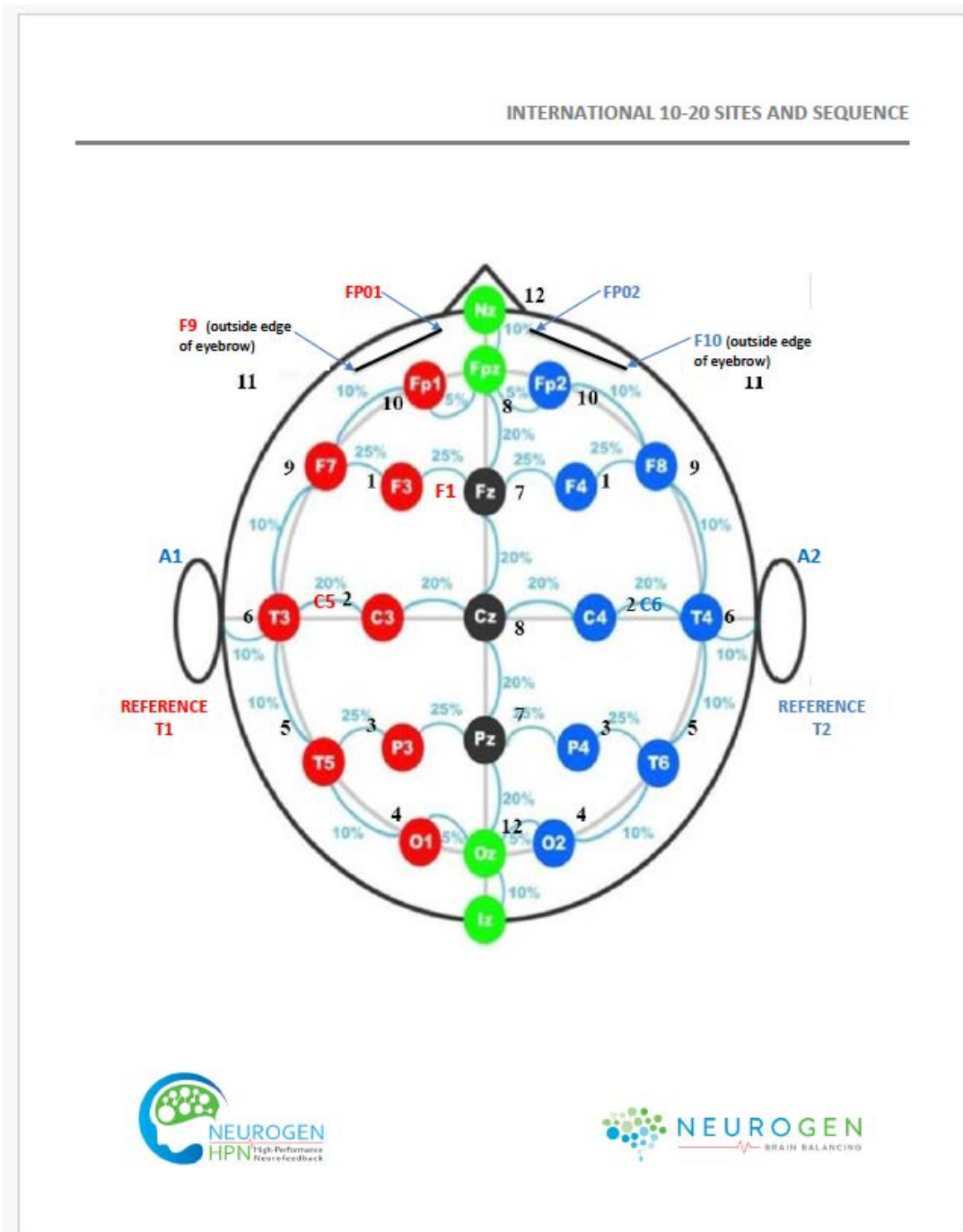


Figure 1. Placement locations for leads on the scalp.

Unlike conventional neurofeedback, it does not require active participation by the client. Due to the novel nature of this modality in this pilot study, there are no previously peer-reviewed sources in the literature. However, according to anecdotal reports, the passive and flexible application of NGBB allows it to be utilized across diverse populations, including infants, children with Autism Spectrum Disorder (ASD) or Attention Deficit Hyperactivity Disorder (ADHD), animals such as horses and dogs, and even adults and elderly individuals with low-functioning levels of consciousness, including those in coma or with severe Traumatic Brain Injury (TBI). Furthermore, anecdotally NGBB has been reported to offer benefits for individuals experiencing phantom limb pain, potentially aiding in neuroplasticity and sensory integration by resetting pain circuitry.

1.1. Defining Neurobiomodulation

Neurobiomodulation is a therapeutic intervention that modulates electrical signaling in the brain and nervous system to restore function [9]. This technology: interrupts maladaptive patterns, disrupting irregular brainwave activity that results in symptoms; promotes neuroplasticity that supports the development of new, healthy neural pathways; regulates the nervous system to balance sympathetic (fight/flight) and parasympathetic (rest/digest) responses.

1.2. Mechanism of Action

According to the Neurogen website and literature, it employs ultra low-level pulsed electrical signals to interact with the brain's natural electrical currents based on a specific algorithm that corrects imbalances [7] [8]. Its purported mechanisms include: inflammation reduction (*i.e.*, modulating neuroinflammatory responses); improved connectivity, strengthening neural pathways and improving brain communication; autonomic regulation to restoring balance between sympathetic and parasympathetic nervous systems.

The therapeutic effects of Neurogen™, Microcurrent Neurofeedback (MCN), and LIP-tES are primarily mediated through neurobiomodulation, a process that influences neuronal excitability, connectivity, and neuroplasticity to restore optimal brain function. These interventions utilize low-intensity electrical pulses to modulate cortical and subcortical networks, promoting functional reorganization in patients with neurological and psychological disorders. The precise mechanisms underlying these benefits involve several key processes, including neural network stabilization, neuroinflammation reduction, and autonomic nervous system modulation.

1.2.1. Neural Network Stabilization and Enhanced Connectivity

Neuroimaging studies indicate that neuromodulation therapies facilitate functional reorganization in brain networks disrupted by trauma, stress, or chronic pain conditions. Research on PTSD and mild traumatic brain injury (mTBI) patients has shown abnormal slow-wave activity in the amygdala, hippocampus, and prefrontal cortex, which correlates with impaired emotional regulation and cog-

nitive dysfunction [10]. Following treatment with LIP-tES and MCN, MEG and qEEG scans revealed a significant reduction in pathological slow-wave activity, suggesting that these interventions restore dynamic balance in brainwave oscillations, allowing for improved executive function, emotional stability, and cognitive processing [11]. By enhancing synaptic efficiency and promoting neuroplasticity, these therapies support functional connectivity improvements, potentially reversing maladaptive patterns observed in PTSD, TBI, and chronic pain disorders.

1.2.2. Neuroinflammation Modulation

Chronic neuroinflammation is implicated in neurodegenerative disorders, traumatic brain injury, and persistent pain syndromes, often resulting from glial cell activation and excessive cytokine release. Neuromodulation technologies are hypothesized to reduce neuroinflammatory responses by influencing microglial activity and cytokine expression, thereby mitigating the neurotoxic effects of prolonged inflammation [8]. While direct biomarker evidence remains limited, clinical symptom improvements in chronic pain and neuroinflammatory conditions following MCN and LIP-tES treatments suggest potential anti-inflammatory effects. Future studies incorporating blood and cerebrospinal fluid analysis of key inflammatory markers (e.g., TNF- α , IL-6, CRP) will be crucial to substantiate these findings.

1.2.3. Autonomic Nervous System Regulation

Dysregulation of the autonomic nervous system (ANS) is frequently observed in PTSD, chronic pain, and stress-related disorders, contributing to hyperarousal, persistent pain perception, and emotional dysregulation. Transcranial stimulation therapies have been postulated to influence the ANS via vagal nerve modulation, promoting a shift from sympathetic overactivation (fight-or-flight response) to parasympathetic dominance (rest-and-digest state). Although heart rate variability (HRV) studies remain scarce in this context, the observed reductions in PTSD-related hypervigilance, migraine frequency, and emotional instability suggest a beneficial effect on autonomic homeostasis [11]. Future research should incorporate HRV monitoring to objectively assess the impact of MCN and LIP-tES on autonomic regulation.

1.2.4. Conclusions Regarding the Underlying Mechanism

While clinical efficacy data support the use of Neurogen™, MCN, and LIP-tES across diverse conditions, the precise mechanistic pathways underlying their benefits require further elucidation. Neural network stabilization, neuroinflammation reduction, and autonomic nervous system regulation represent three plausible mechanisms contributing to therapeutic improvements. Future research should integrate biomarker studies, neuroimaging advancements, and autonomic function assessments to establish a comprehensive understanding of neuromodulation-induced benefits, ultimately optimizing its clinical application for neurological and psychological rehabilitation.

1.3. Clinical Efficacy Across Diverse Conditions

Emerging evidence supports the efficacy of Neurogen™, MCN, and LIP-tES in addressing a range of neurological and psychological disorders, including mild traumatic brain injury (mTBI), post-traumatic stress disorder (PTSD), chronic pain, and cognitive dysfunction. Clinical trials and case studies indicate significant symptom improvement across these conditions. In patients with mTBI, Neurogen™ therapy demonstrated a 59% reduction in photophobia symptoms, a 73% improvement in post-concussive symptoms, and a 37% decrease in headache severity, suggesting enhanced neural recovery and symptom relief following neuromodulation interventions [11]. Additionally, research on PTSD patients has highlighted abnormal resting-state magnetoencephalography (MEG) activity, including amygdala hyperactivity and prefrontal cortex hypoactivity, which are characteristic of dysregulated emotional processing; following LIP-tES and MCN treatments, patients exhibited a 53.6% reduction in abnormal slow-wave activity, correlating with substantial symptom relief [10]. MEG is a non-invasive neuroimaging technique that measures the magnetic fields generated by neuronal activity in the brain. It provides real-time, millisecond-resolution data on brain function, making it an essential tool for studying functional connectivity, brain disorders, and neuroplasticity. Unlike EEG (electroencephalography), which measures electrical activity, MEG detects magnetic signals that pass through the skull and scalp without distortion, allowing for more precise localization of brain activity. MEG is commonly used in research on traumatic brain injury (TBI), PTSD, epilepsy, chronic pain, and cognitive function to assess abnormal neural patterns and treatment responses. Similarly, studies on chronic pain and neuroinflammatory conditions suggest that MCN may serve as a non-pharmacological alternative to opioid-based pain management, potentially modulating pain perception and autonomic regulation, although direct inflammatory biomarker validation remains necessary [8]. Given the breadth of its applications, neuromodulation therapies such as Neurogen™, MCN, and LIP-tES show strong clinical potential, warranting further research to validate their mechanisms of action and expand their therapeutic reach.

2. Clinical Applications

Neurogen therapy has been successfully applied to the following conditions as observed anecdotally by certified practitioners [7] [8]: mental health disorders, such as PTSD, anxiety, depression, ADHD, OCD, and others; neurological conditions, such as TBI, concussions, migraines, sleep disorders; chronic pain syndromes, such as fibromyalgia, musculoskeletal pain, degenerative disc [12]; Autoimmune and Fatigue Syndromes, including chronic fatigue syndrome (CFS) and other inflammation-related disorders; neurodegenerative conditions, including early cognitive decline, brain fog, Parkinson's-related symptoms; long COVID Recovery that supports brain and immune function post-viral illness.

The NGBB system combines safety and efficacy. Unlike pharmaceutical ap-

proaches, Neurogen addresses the root causes of neurological dysfunction with little-to-no side effects following a session *e.g. occasional, short-term headache or agitation, making it suitable for long-term, sustainable treatment) [7].

According to Neurogen’s informed consent documents, NGBB uses a gentle, proprietary process that has been clinically shown to reduce symptoms associated with neurological conditions that stem from imbalances in the brain. There are billions of neurons in the brain that create waves of bioelectric energy. With our patented procedure, we can measure the electrical activity of neurons within the brain. Then, we use a painless, low-power pulse transcranial stimulation procedure to interrupt unhealthy brain wave patterns and promote new, healthy ones. The brain’s response is typically fast, with changes noticed in the first session or two, impressive. Neurogen Brain Balancing targets areas of the brain where imbalances are causing a variety of symptoms.

Summary of conditions ameliorated by NGBB as reported by their website [7] are listed in **Table 1**.

Table 1. Conditions observed to improve via NGBB.

ADHD	Chronic fatigue	Migraines
Academic performance	Concussions	OCD
Addiction	Depression	PTSD
Anger	Hyper-vigilance	Pain
Anxiety	Insomnia	Stress
Athletic performance	Long COVID	TBI
Autism	Memory	Tourette’s

Note: Conditions in bold are highlighted due to their frequent occurrence and remarkable observed improvements.

2.1. Overview of NGBB

The following is a summary of the most commonly asked questions about NGBB and its benefits sourced from NGBB and staff [7]. NGBB is a passive, non-invasive, state-of-the-art method that optimizes brain function for better balance and health. The benefits of NGBB range across various neurological conditions. NGBB is effective for conditions like chronic pain, depression, anxiety, migraines, PTSD, ADHD, and more. N-HPN treats the root cause, addressing the underlying brain imbalances and dysregulation, rather than merely masking symptoms.

NGBB ensures safety and efficacy through a comprehensive set of protocols. During the first session, the practitioner asks detailed questions to tailor the protocol to the individual (assessment). Treatment plans vary based on each client’s brain and nervous system (customization). Each session thereafter also begins with a comprehensive assessment to tailor treatments to individual needs, followed by administration by certified Neurogen practitioners trained in the latest methodologies. These measures collectively provide a secure and effective experience, prioritizing client well-being while optimizing results. The EEG amplifier

uses a very low-strength signal (1/100th of an AA battery) that is far below levels detectable by the client. There is no pain associated with this procedure. Leads are attached to the base of the neck, behind each ear, and on the scalp (see **Figure 2** and **Figure 3**).



Figure 2. Practitioner placing leads on a client.



Note: Participants shown in **Figure 2** and **Figure 3** have consented to the use of their photos.

Figure 3. Practitioner placing leads on a client.

Common positive responses after a treatment include mental clarity, clearer vision, better sleep, reduced anxiety and depression, improved focus and motivation, and enhanced patience/reduced irritability. Temporary adverse side effects may include tiredness, lightheadedness, mild headaches, or temporary symptom exacerbation, which typically resolve within minutes or hours. A good night's sleep is recommended afterwards to enable the body to assimilate and integrate the changes.

The number of treatments needed varies by individual. Some may see improvement after one session. However, chronic or more severe issues often require 15 - 20 sessions for adults (less for youth). Improvements in symptom reduction last longer with each session and can become sustainable over time.

After treatment, clients report experiencing observable changes. These may be immediate or gradual improvements. Many clients report that family, friends, or colleagues often notice these changes first.

According to Dennis Yeatman (personal communication, January 24, 2025), COO of Neurogen Brain Balancing, they have completed over 30,000 sessions since 2019. Certified practitioners recorded each session in written logs and compiled the data annually. No known long-term adverse effects have been observed, and the majority of clients report noticeable improvement in common symptoms after as few as four treatments.

NGBB maintains a national, growing network of practitioners who are certified in administering this therapy. Each new client who receives this therapy completes a questionnaire and survey tracking symptoms as well as an informed consent (Figure 4).

2.2. Subjective Experiences Reported by Users of Neurogen

The following sections include case studies that exemplify the subjective experiences reported by individuals who have undergone Neurogen treatment.


2.2.1. Case 0

Greg Gillispie, the founder of Neurogen Brain Balancing, a retired Marine Corps Master Gunnery Sergeant, spent 30 years in the Marine Corps, including 27 years in special operations with 1st Marine Corps Reconnaissance Battalion. As a high-altitude military free-fall parachutist, jump master, and combat diver, he endured multiple combat deployments and severe injuries, including brain damage, fractured vertebrae, broken ankles, and concussions that led to PTSD and traumatic brain injury (TBI).

After retiring, Greg suffered for five years with severe migraines (3 - 4 times per month), chronic pain, double vision, insomnia, anger issues, anxiety, and depression. Despite having a loving family and a stable career, he struggled internally with the lingering effects of TBI and PTSD.

His life changed dramatically after his first Neurogen Brain Balancing treatment, where his symptoms resolved within 8 - 10 hours. The treatment identified brain imbalances and used electrical signals to stimulate healing, leading to immediate and profound relief. The simplicity and effectiveness of the process inspired him to share it with fellow Marines and veterans, believing that if it worked for him, it could work for others.

Greg describes his experience as life-changing, emphasizing that no effort is required—just sitting in the chair—and that the therapy has had a huge impact on his quality of life, offering hope and healing to others struggling with similar conditions. He provided the following account of his experience dated October 18, 2023:



ADULT INTAKE INFORMATION

Name _____ Date _____

Address _____ City _____ State _____ Zip _____

Email _____ Phone _____

Preferred Method of Contact: Call, Text or Email _____ Male Female DOB _____

In case of emergency _____ Phone _____

Referred by: _____

To help us better serve you, please check the boxes for any symptoms or conditions you are experiencing. If yes, please answer the appropriate questions and rate on a scale from 1 – 10, with 10 being the most pain, most difficulty, most troublesome.

<input type="checkbox"/> Headaches How often _____	<input type="checkbox"/> Anxiety (1-10) _____
<input type="checkbox"/> Migraines How often _____	<input type="checkbox"/> Depression (1-10) _____
<input type="checkbox"/> History of Seizures	<input type="checkbox"/> Stroke
<input type="checkbox"/> Sleep Do you have difficulty falling asleep? _____	<input type="checkbox"/> Traumatic Brain Injury Describe _____
Do you have difficulty staying asleep? _____	<input type="checkbox"/> Tremors Describe _____
How many hours do you sleep per night? _____	<input type="checkbox"/> Vertigo (1-10) _____
Do you wake feeling rested? _____	<input type="checkbox"/> Tinnitus (1-10) _____
Additional comments _____	<input type="checkbox"/> Chronic Fatigue (1-10) _____
<input type="checkbox"/> Pain (1 – 10) _____	<input type="checkbox"/> Fibromyalgia (1-10) _____
Describe _____	<input type="checkbox"/> PMS (1-10) _____
<input type="checkbox"/> Poor Concentration (1 -10) _____	<input type="checkbox"/> Menopausal Symptoms (1-10) _____
<input type="checkbox"/> Brain Fog (1-10) _____	<input type="checkbox"/> Digestive Health (1-10) _____
<input type="checkbox"/> Memory (1-10) _____	<input type="checkbox"/> Stress (1-10) _____
<input type="checkbox"/> ADD/ADHD (1-10) _____	<input type="checkbox"/> Hypervigilance (1-10) _____
<input type="checkbox"/> Difficulty Making Decisions _____	<input type="checkbox"/> Anger/Rage (1-10) _____
<input type="checkbox"/> Easily Distracted _____	<input type="checkbox"/> Light Sensitivity (1-10) _____
	<input type="checkbox"/> Sound Sensitivity (1-10) _____
	<input type="checkbox"/> Other _____

Goals for this visit _____

Medications _____

Figure 4. Neurogen informed consent form.

“Hi, my name is Greg Gillispie. I’m a retired Marine Corps Master Gunnery Sergeant. I spent 30 years in the Marine Corps, 27 of those in special operations; 1st Marine Corps Reconnaissance Battalion. I became a high altitude military free fall parachutist & military free fall jump master. I was a diver. I was a scuba diver and combatant close-circuit diver, and we used Atlantic bottle-nose dolphins and unmanned underwater vehicles. I did multiple combat de-

ployments and was blown up multiple times, so...I got some Purple Hearts. But I was severely brain damaged and got fractured vertebrae in my back and broken toes and broken ankles, that type of thing. So, after I retired, I was living with the aftermath of that.

“Prior to my first treatment, I was having severe migraine headaches 3 to 4 times a month. I had severe sleep issues. I had double vision. I had chronic pain on multiple parts of my body, severe anger issues, and depression and anxiety. And we were all thrown into the PTSD group or traumatic brain injury if you’ve been involved in any kind of concussive event. Which I had had many of those.

“So, for five years after I retired, that’s where I was at. I was just going through life. I had a great marriage. I had two wonderful boys I had a government contractor job. But internally with my PTSD and my traumatic brain injuries, I was suffering.

“After my first treatment, all of those things resolved within 8 to 10 hours. They find imbalances in your brain or where you have brain damage or you have stuck brain patterns, and they put an electrical signal into your brain and it can help you. It can help your brain to heal itself or adjust itself.

“So I agreed to do it and I’m so thankful I did. I mean it literally has had a huge impact on the quality of my life. When I saw the huge impact it made on my life and how simple it was. I figured if it worked on me, it’s certainly going to work on other Marines and other veterans. You don’t have to do anything other than sit in the chair. It’s that simple and it can truly change your life.”

The objective effects of Neurogen are observable quantitatively, as evidenced by this Before & After qEEG (quantitative EEG) measurement of Greg Gillispie’s brain following his first ten treatments (**Figure 5**).

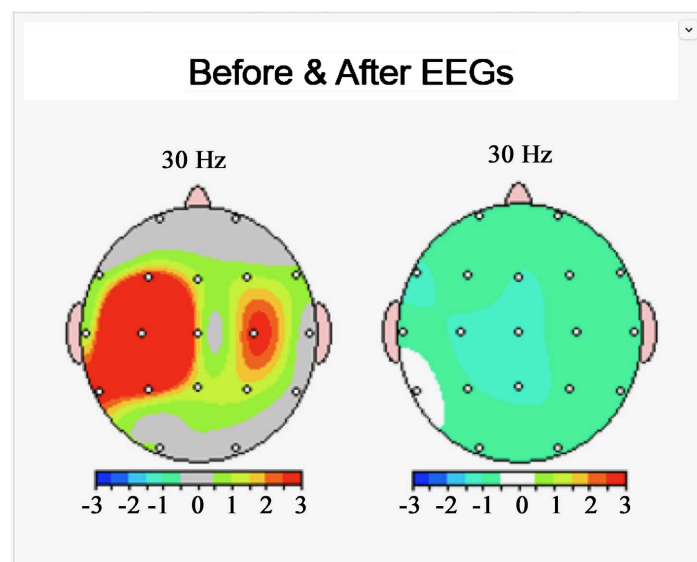


Figure 5. Before & After qEEG measurements for Case 0 after ten treatments.

The image on left represents the scan of his brain before his first session, and the brain on the right shows his activity after ten sessions approximately one week apart. The scale below ranges from -3 to $+3$, corresponding with colors represented on the image, with -3 indicating severe hypoactivity to $+3$ reflecting severe hyperactivity. This scale is based on a “z score,” with each interval representing one standard deviation outside of a normative range of functioning. The 30 Hz range of frequency reflects Gamma waves, associated with higher brain activities such as focus.

Before EEG (**Figure 5**, left image):

Red and yellow regions: Indicate areas of significantly increased activity or hyperactivation, particularly on the left hemisphere and some central regions. This could correlate with heightened brain stress, overactivation, or imbalances in those specific areas.

After EEG (**Figure 5**, right image):

Predominantly green regions: Suggest a significant reduction in hyperactivity and a shift towards a more balanced and calm brain state. The absence of red zones: Indicates a resolution of overactivation, implying the intervention had a calming and stabilizing effect on the brain’s electrical activity.

Key observations: The transition from red/yellow to green/neutral tones indicates a measurable reduction in brain overactivity at 30 Hz. The calming of activity is uniformly spread, showing a systemic effect rather than isolated improvements. This suggests improved regulation of brain function, potentially correlating with reduced symptoms such as stress, anxiety, or other related conditions. Areas with values near 0 are considered balanced or within the normative range, indicating optimal brain function without noticeable underactivation or overactivation.

In this context:

Before EEG (**Figure 5**, left image):

The red and yellow regions indicate hyperactivation ($+2$ to $+3$) in specific brain areas, suggesting stress, imbalance, or overworking circuits. This corresponds with Greg’s subjective report of extreme psychological disturbance.

After EEG (**Figure 5**, right image):

The predominance of green regions signifies activity close to 0 on the scale, indicating a return to balance and normalization of brain function. The absence of extreme positive or negative values highlights the success of the intervention in stabilizing brain activity. This correlates with the relief and beneficial effects Greg experienced after this intervention.

2.2.2. Subjective Report of a Former Navy SEAL

The provider of this technology has a nonprofit called Brain Balancing for Veterans (BB4V). In exchange for free sessions for veterans and their dependents, the participants granted permission for their experiences to be shared to advance research and understanding of Neurogen’s effects.

A former Navy SEAL turned FBI agent, Drew, reported the following experi-

ence:

“I’m Drew, I was an active duty Navy SEAL for 15 years and have been an FBI agent for 18 years. I spent about 10 years in SEAL platoons. I got migraines. I got vertigo that was sporadic and unexplained. and I’ve been in constant pain pretty much the entire time I was in the platoons. On January 20 this year my wife sat me down and said that she didn’t wanna be alone with me and the kids didn’t want to be alone with me. I went to see my doctor in crisis mode and was very quickly diagnosed with PTSD, explosive brain trauma, TBI, & Operator Syndrome.

“So I ran into Dennis Yeatman. I don’t even know how it came up, but he mentioned Neurogen and how it can really help with brain balancing. The brain has the ability to heal itself. But sometimes it forgets, and for me it had been over 20 years.

“I had set up a good base for everything else I did, but I couldn’t get through a couple of hurdles; Migraines, Sleep & Anxiety. Tomorrow, for me, is eight months RAGE FREE. It’s kinda big deal! And, after my 6th session I slept for like 7 ½ hours. Which for me is unprecedented. I know it got me through a really critical time of my life. And more importantly it gave me HOPE.

“Neurogen has your back. Come in. Your brain is Neuro-plastic; Google it! But sometimes it forgets. Reteach it. Let it heal.”

In summary, six sessions of NGBB relieved him of rage, a milestone that transformed his relationships and mental well-being. After struggling for years with migraines, sleep issues, and anxiety, he found relief and finally overcame obstacles he could not tackle on his own. Following just six sessions, Drew experienced an unprecedented sound sleep—a critical breakthrough for his recovery. He finally experienced significant and meaningful healing after 20 years of trauma. Most importantly, it pulled him through a crisis point in his life and restored his hope for the future.

2.2.3. Subjective Report of a Civilian Weaning Off Antidepressants Post-NGBB

John, a CFO, personally shared his experience, revealing that he had battled decades of depression and relied on medication for over 20 years. In his account, he detailed the profound impact Neurogen had on his life.

“I’m John. I am a chief financial officer. I’ve been a CPA my whole career, so very high stress position. I’ve dealt with depression pretty much all my life. I grew up in the Pacific Northwest; Low, gray skies. And that sort of became my metaphor for depression is when the low gray sky would just move in. And that cloud cover, for no reason would just come and take over my life. So I figured it was something that was going to be dealing with and taking medication for, for my life. And after three sessions, I was feeling very good and decided to try again going off the anti-depressants, and I’ve been off for

six months.

“Yea, a very real difference, and it is noticeable to other people, and especially to my partner who sees me day in and day out. I think also with medications, they are good for masking symptoms. But they are not relieving them. Neurogen RELIEVED them. And it’s INCREDIBLE. I’ve had Neurogen tuneup sessions. I think in total over the past six months maybe 10 sessions, and they were fewer and farther between. So yea, I think this is for keeps.

“This is new me!”

In summary John, a CFO and CPA, struggled with lifelong depression and relied on antidepressants for over 20 years. He described his depression as a persistent low, gray sky that would settle in without warning. After three Neurogen sessions, he noticed a significant shift and successfully tapered off his medication, remaining off for six months. Unlike medications that masked symptoms, he found Neurogen provided lasting relief. With only 10 sessions over six months, his well-being improved, and even his partner noticed the change. Now, he embraces what he calls the “new me”—a life free from the weight of chronic depression.

3. Observational Case Studies

The following sections describe a sampling of case reports from Certified Neurogen practitioners who treated a broad array of conditions. The cases include veterans across all of the armed forces who were willing to receive four free sessions of NGBB to ameliorate their mental health conditions. Each Neurogen session is a standardized 20 minutes session. The electrodes simultaneously administer the signal and record it in the computer.

3.1. Case 1: Traumatic Brain Injury (TBI) and Photophobia

Patient: Male, 48 years old, Veteran.

Symptoms: Severe light sensitivity, post-concussive headaches.

Protocol: 12 sessions of Neurogen Brain Balancing.

Results: 59% reduction in photophobia, 73% improvement in headaches.

3.2. Case 2: PTSD and Emotional Instability

Patient: Female, 38 years old.

Symptoms: PTSD, insomnia, chronic anxiety, and fatigue.

Protocol: approximately six sessions of Neurogen Brain Balancing.

Results: Improved sleep, emotional regulation, and reduced hyperarousal.

3.3. Case 3: ADHD and Migraines

Patient: Male, 14 years old.

Symptoms: Inability to focus, frequent migraines.

Protocol: Six sessions of Neurogen Brain Balancing integrating systemic and

localized brainwave realignment.

Results: Decreased migraine frequency, improved focus, and academic performance.

3.4. Case 4: Chronic Fatigue and Autoimmune Issues

Patient: Female, 36 years old.

Symptoms: Chronic Fatigue Syndrome (CFS), joint pain, low energy.

Protocol: 10 sessions of Neurogen Brain Balancing targeting systemic regulation and immune balance.

Results: 50% improvement in energy levels and reduced inflammation markers.

3.5. Case 5: Chronic Pain and Degenerative Disc Disease

Patient: Male, 56 years old.

Symptoms: Severe lower back pain, sciatica.

Protocol: Eight sessions of Neurogen Brain Balancing.

Results: Pain reduction from 8/10 to 3/10 on the subjective units of distress scale (SUDS), improved flexibility, and reduced reliance on pain medications.

3.6. Case 6: Anxiety and Insomnia

Patient: Female, 45 years old.

Symptoms: Long-term insomnia and generalized anxiety disorder (GAD).

Protocol: 12 sessions of Neurogen Brain Balancing.

Results: Sleep quality improved, anxiety symptoms reduced substantially.

3.7. Latest Neurogen™ Research Overview

Case Report: In addition to her work on Cases 1-6, Dr. Jenalyn Jotie, a U.S. Navy veteran and neuro-optometrist, published a report investigating Neurogen™ for light sensitivity after mTBI, presented at the Neuro-Optometric Rehabilitation Association 2023 conference.

Subject: A 48-year-old Post-9/11 veteran with disabling light sensitivity.

Results: The subject experienced a 59% reduction in light sensitivity; 73% reduction in post-concussive symptoms; 37% reduction in headache impact (improvements measured via UPSIS-17, RPCSQ, and HIT-6 questionnaires).

Subjective Feedback: The veteran reported doing yard work without sunglasses and noted improved emotional regulation (“little things no longer bothered me”).

4. Neurogen Brain Balancing as a Veteran Benefit: A Pilot Study

4.1. Overview of Veteran Study

A nonprofit called Brain Balancing for Veterans (BB4V) conducted a pilot study of 128 veterans from the dates May 10, 2023 until January 6, 2025 which surveyed their subjective experience on a range of 0 - 10 SUDS from best to worst, prior to

their first NGBB session, and assessing their state after four sessions. Participants for the BB4V study were naturally obtained. There was no pre-selection criteria or marketing done to drive veterans to the study. Veterans that signed up for NGBB sessions that identified themselves as veterans or dependents of veterans were offered the opportunity to receive their treatments at no cost.

Independent Neurogen Practitioners, in consideration for being listed on the neurogenbb.com website, agreed to offer Veterans four free sessions of Neurogen Brain Balancing, which each normally cost no less than \$150.00. BB4V, the non-profit, agreed to subsidize each session \$50.00, paid to the practitioner upon successful completion of the one page form from the participants.

The first page of this BB4V's Client Information Consent (**Figure 6**) displayed gathering demographics and providing the conditions assessed from 0 - 10, as well as the client's ratings of symptoms before and after treatment.

The participant was asked to rate the following pathologies from 1 - 10 on a Likert scale (with 1 being the worst and 10 being the best), and if the condition did not apply, the client was asked to respond "N/A" for not applicable. The following are the 10 most commonly reported conditions that clients seek to ameliorate: headaches, sleep, depression, PTSD, anxiety, anger, pain, focus, memory, and brain fog.

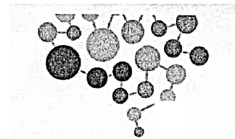
Items were scored in reverse in an earlier version of the form administered to the clients, 10 being the worst, and 1 being the best on the scale. These were analyzed separately, noting improvement.

The client filled in the form prior to the first session (the left hand column at the bottom half of the page) and then after the final, fourth session, completed the after treatment column (at the right handed column).

4.2. Demographics and Health Conditions

One hundred and twenty-eight veterans were tested ($n = 128$), of which 80 ($n = 80$) completed all four sessions and both the pre- and post-assessments. One hundred and four of the participants tested were male ($n = 104$) and 24 participants were female ($n = 24$; it is worth noting that 17.5% of the US military is female). The dataset includes veterans from multiple branches of service, with the U.S. Army (USA), U.S. Marine Corps (USMC), U.S. Navy (USN), U.S. Air Force (USAF), and U.S. Coast Guard (USCG) being the most represented. The U.S. Army and U.S. Marine Corps have the highest number of individuals, reflecting their significant presence in military service. There are also a few entries for Navy SEALs, Navy spouses, and Army nurses, indicating some diversity in service roles.

Analyzing years of service, the dataset reveals a broad range from 1 to 35 years, with a notable clustering around 4, 8, 10, 20, and 30 years of service. Ages ranged from 30-65 years old, and the average age was 44 years old. A large proportion of individuals served for four years, suggesting a significant number of personnel who completed a standard enlistment period. Another major group falls into the 8 to 10-year range, potentially reflecting those who extended their service beyond



Brain Balancing for Veterans

Client Information and Consent

First/Last Name

Branch of Service Rank

Years of Service

Email Address Phone

Primary Issue(s) Being Addressed

Please rate the following on a Scale of 1 to 10.

1 - Very Poor 10 - Excellent

Prior to Treatment		After Treatment	
<input type="text" value="Headaches"/>	<input type="checkbox"/>	<input type="text" value="Headaches"/>	<input type="checkbox"/>
<input type="text" value="Sleep"/>	<input type="checkbox"/>	<input type="text" value="Sleep"/>	<input type="checkbox"/>
<input type="text" value="Depression"/>	<input type="checkbox"/>	<input type="text" value="Depression"/>	<input type="checkbox"/>
<input type="text" value="PTSD"/>	<input type="checkbox"/>	<input type="text" value="PTSD"/>	<input type="checkbox"/>
<input type="text" value="Anxiety"/>	<input type="checkbox"/>	<input type="text" value="Anxiety"/>	<input type="checkbox"/>
<input type="text" value="Anger"/>	<input type="checkbox"/>	<input type="text" value="Anger"/>	<input type="checkbox"/>
<input type="text" value="Pain"/>	<input type="checkbox"/>	<input type="text" value="Pain"/>	<input type="checkbox"/>
<input type="text" value="Focus"/>	<input type="checkbox"/>	<input type="text" value="Focus"/>	<input type="checkbox"/>
<input type="text" value="Memory"/>	<input type="checkbox"/>	<input type="text" value="Memory"/>	<input type="checkbox"/>
<input type="text" value="Brain Fog"/>	<input type="checkbox"/>	<input type="text" value="Brain Fog"/>	<input type="checkbox"/>

In just a few sentences, please describe your experience with Neurogen Brain Balancing.

Figure 6. BB4V's client assessment.

initial commitments. A third cluster consists of individuals with 20 to 30+ years of service, indicating long-term military careers, likely including officers and high-ranking enlisted personnel.

Overall, the branch distribution suggests a balanced representation across service types, with a concentration in the Army and Marines. The years of service distribution highlights a mix of short-term enlistees, mid-career veterans, and long-serving military personnel, demonstrating a diverse range of experience lev-

els among those in the dataset.

The dataset highlights the diverse team of 18 certified Neurogen Brain Balancing practitioners—who each underwent five onsite days of training and each independently own a Neurogen Brain Balancing unit. These practitioners listed on the NGBB website agree to serve veterans at no charge, providing up to four sessions at no charge. In this pilot study, BB4V subsidized the practitioners a nominal \$50.00 upon receipt of a completed survey form after they performed a session.

Among the practitioners, several contributed significantly to the program, with some handling a notably higher caseload. Their expertise underscores the collaborative effort required to address the complex health challenges faced by veterans and service members. Sessions were held across multiple locations, reflecting a geographically distributed approach to care. Phoenix, AZ emerged as the most prominent location, hosting 28 sessions, followed by San Diego, CA with 21 sessions. Other key locations included Palatine, IL (16 sessions), Austin, TX (14 sessions), Tri-City, TN (11 sessions). This distribution illustrates the program's commitment to accessibility and its reach across various regions.

Each of the veterans that signed up to participate approached the practitioner with the specific issue listed on their intake form and their treatment varied based on this intake. The 10 questions used on the BB4V survey were created based on the frequency of selection during ~25,000 sessions. These included: headaches, sleep, depression, post-traumatic stress disorder (PTSD), anxiety, anger, pain, focus, memory, and brain fog.

The practitioner is trained to treat specific issues with a dedicated protocol sequence. These pairings and sequences have been developed over a 20+ year period of time. Most sessions start with a “Total Balance” and are then tailored to more specific areas based on the client's symptoms and desired results. Sample pairings of the International 10-20 Site Pairings and Sequencing are provided here (Yeaman, D., personal communication, February 20, 2025):

Total Balance: F3/F4, C3/C4, P3/P4, O1/O2, T5/T6, T3/T4, FZ/PZ, FPZ/CZ, F7/F8, FP1/FP2, F9/F10, NZ/OZ, F3/F7.

Migraine: T3/T4, T4/P4, FPO2/P4.

Sleep: C3/T3, [CZ/C3, CZ/C4] (5-10 minutes each).

Depression: F3/F4, O1/O2, T3/T4, FP1/FP2, F3/F7.

PTSD: T3/T4, T4/P4, P4/FPO2.

The practitioner chooses which pairings to use based on experience, communications with the client, feedback, and response from previous sessions. Practitioners determine the best site pairing to use based on input from the client. The protocols are used on the general population as well as veterans. PTSD, depression, sleep, and migraines are more common with veterans than the general population, but the protocols to treat are the same.

The primary health concerns reported include: traumatic brain injury (TBI), PTSD, major depressive disorder (MDD), depression, anxiety, and migraines. These conditions indicate a strong focus on mental health and neurological well-

being, likely linked to service-related trauma and stress. A clustered analysis of the data reveals that the largest group (42.86%) falls under PTSD, anxiety, and depression, highlighting a critical need for emotional and psychological support. Sleep disorders and fatigue account for 25.89% of cases, encompassing issues such as insomnia, restlessness, and chronic fatigue, often linked to PTSD and depression. Memory and cognitive issues, including brain fog, focus problems, and executive dysfunction, make up 16.07%, suggesting possible neurological trauma or stress-related impairment. Pain and physical symptoms—such as chronic pain, headaches, and muscle pain—represent 8.93%, indicating a notable but smaller subset of individuals experiencing physical discomfort alongside neurological conditions. Lastly, miscellaneous neurological and emotional concerns account for 6.25%, covering less common but significant issues like Parkinson's, smoking cessation, and anger-related challenges. Overall, the analysis underscores the dominance of PTSD, anxiety, depression, and sleep-related issues, while also recognizing the impact of cognitive decline and chronic pain among the population.

Practitioners noted the following themes among participants:

- 1) Emotional and psychological well-being (calmness, reduced PTSD symptoms, brighter mood).
- 2) Improvement in Cognitive function (focus, memory, clarity).
- 3) Physical health gains (headache reduction, energy improvement, night sweats).
- 4) Synergistic therapy effects (combination of therapies enhancing outcomes).
- 5) Subjective vs. objective differences (some perceive no change despite measurable improvements in their self-ratings as sessions progressed).

4.3. Data Analysis

A total of 451 NGBB sessions were conducted among 128 participants ($n = 128$). On average, participants attended approximately 3.64 sessions. The minimum number of sessions attended by a participant was one. The maximum number of sessions attended by a participant was 16.

Among those tested, eighty ($n = 80$) individuals completed the pre- and post-assessments, one at the onset of their first session, and one upon completion of their fourth session. These assessments were totaled. The responses were compared. The ones with improvements were noted, same, or worse by comparing the numbers.

5. Discussion

The data provided by Neurogen Brain Balancing suggest significant improvements across a broad range of neurological and psychological conditions, particularly in populations affected by trauma, PTSD, and brain injuries. The client surveys, clinical observations, and anecdotal reports all reinforce these findings, demonstrating notable symptom reduction and enhanced well-being. Of particular interest is the passive, non-invasive nature of the intervention, which requires no active cognitive engagement from clients. This characteristic makes it uniquely

accessible to individuals who may struggle with traditional neurofeedback or talk therapy due to cognitive overload, severe trauma, or attentional impairments. The fact that NGBB is reported to have minimal, if any, side effects further supports its potential as a safe and viable therapeutic option for those seeking an alternative to pharmaceuticals or more invasive interventions. The interplay between chronic pain and psychological stressors is well-documented, with research highlighting how prolonged stress can reinforce maladaptive neural pathways that perpetuate both physical and emotional distress [13]. This aligns with findings from Neuro-gen Brain Balancing, where clients with pain-related conditions often report relief as neurobiomodulation helps restore regulatory balance in the nervous system, reducing both physiological and psychological burdens.

A key consideration in analyzing treatment outcomes is the subjective-objective discrepancy observed among clients. While practitioners and post-treatment SUDS scores often indicate measurable improvements, many clients do not perceive these changes on a session-by-session basis. This phenomenon, well-documented in psychology and neuroscience, arises due to factors like hedonic adaptation, cognitive biases, emotional variability, and memory distortion [14]. Clients may anchor their perception to their initial distress level, failing to recognize incremental improvements. Davidson and McEwen [15] highlight how the brain registers gradual neuroplastic changes over time, making it difficult for individuals to consciously detect their progress in real-time. Studies on exposure therapy for PTSD and anxiety have similarly shown that, while clients may feel stagnant or unchanged, SUDS scores continue to decline across sessions, reflecting actual physiological and psychological improvements [16]. This underscores the importance of consistent tracking and practitioner validation to help clients recognize their progress and stay engaged in treatment.

Moreover, quantitative neurophysiological data further corroborate subjective reports of improvement. The case of Greg Gillispie, for example, provides a striking illustration of dramatic symptomatic relief following a single NGBB session, with subsequent qEEG scans confirming measurable changes in brain activity (Figure 4). This aligns with research demonstrating that non-invasive neurostimulation can facilitate rapid neuroplastic shifts, particularly in individuals with trauma-induced dysregulation of brainwave activity. While testimonials offer compelling personal evidence, objective neuroimaging and data-driven analyses provide crucial validation, reinforcing the reliability of observed therapeutic effects.

However, the placebo effect must also be considered as a contributing factor to reported improvements. The expectation of relief, combined with the therapeutic presence of a caring practitioner, may enhance positive outcomes in some cases. The well-documented role of expectancy in therapeutic interventions suggests that belief in the effectiveness of a treatment can modulate real physiological responses [17]. While placebo responses do not negate the efficacy of NGBB, they highlight the complex interplay between neurobiological mechanisms, psycholog-

ical state, and therapeutic context. Future research should incorporate double-blind, placebo-controlled studies to disentangle the direct neurological impact of NGBB from expectancy-driven improvements, further refining our understanding of its true therapeutic potential.

Overall, the findings suggest that NGBB offers a promising and innovative approach for managing neurological and psychological conditions, particularly in trauma-affected populations. The evidence supports its role in facilitating neuroplasticity, improving emotional regulation, and enhancing cognitive function. However, continued research using controlled methodologies, objective biometrics, and long-term follow-ups is essential to further establish its efficacy, optimize treatment protocols, and expand its applications across broader clinical populations.

5.1. Limitations and Delimitations

While the findings of this study suggest promising benefits of NGBB for neurological and psychological conditions, several limitations and delimitations should be acknowledged. The study lacked a control group, making it difficult to determine whether the observed improvements were due to the intervention itself or other external factors, such as placebo effects, expectation biases, or concurrent therapies. Additionally, the data was self-reported, which, while valuable, introduces potential subjectivity and recall bias in the reported improvements. The sample size, although substantial at 80 veterans, remains relatively small for generalizability, and future studies should involve larger, randomized controlled trials (RCTs) to establish more definitive causal relationships.

Despite these limitations, the high percentage of reported improvement (78.79%), coupled with quantitative EEG data and subjective testimonials, suggests that NGBB is an effective intervention for PTSD, anxiety, TBI, depression, and sleep disturbances. The passive nature of the treatment, its non-invasive approach, and the lack of major adverse effects make it a compelling option for neurological rehabilitation. The findings support the neuroplasticity hypothesis, suggesting that repeated brain signaling may facilitate neural reorganization and functional recovery, particularly in trauma-affected individuals.

Potential Biases in the Research

While the findings on NGBB demonstrate promising outcomes across various neurological and psychological conditions, several potential biases must be acknowledged. The reliance on self-reported data introduces subjective bias, as participants may overestimate improvements due to placebo effects, expectation biases, or social desirability when reporting their progress. Additionally, the absence of a randomized control group makes it difficult to determine whether symptom reductions were due to NGBB itself or other external factors, such as concurrent treatments or natural symptom fluctuations. Observer bias may also be present, as practitioners administering treatments may unconsciously influence patients' perceptions of improvement. Furthermore, confirmation bias could impact data interpretation, as positive cases may be highlighted more fre-

quently than instances where treatment had little to no effect. To mitigate these biases, future studies should implement double-blind, placebo-controlled trials and incorporate objective physiological measurements, such as qEEG, fMRI, and biomarker analysis, to validate the efficacy of NGBB beyond subjective reports.

5.2. Areas for Further Improvement in Future Research

To strengthen the scientific foundation of NGBB, future research should prioritize rigorous study designs that address current limitations. Conducting randomized, double-blind, placebo-controlled trials would help isolate the true effects of NGBB from placebo responses and expectation biases. Additionally, integrating objective physiological assessments, such as quantitative EEG (qEEG), functional MRI (fMRI), heart rate variability (HRV), and neuroinflammatory biomarkers (e.g., TNF- α , IL-6, CRP), would provide measurable evidence of neurobiological changes following treatment. Adding well-established assessments, such as the Profile of Mood States (POMS) and the Short Form Health Survey (SF-12), for evaluating mind-body health and wellness alongside qualitative subjective reports would strengthen data correlation and validate patient experiences with scientifically recognized metrics. Longitudinal studies tracking patients over six months to a year would also help assess the sustainability of symptom relief and potential long-term neuroplastic adaptations. Finally, expanding research beyond veterans to include diverse populations, such as individuals with autism spectrum disorder (ASD), neurodegenerative diseases, and chronic pain syndromes, would broaden the understanding of NGBB's therapeutic potential across various conditions.

While the pilot study demonstrated promising results, incorporating more detailed demographic data—including age, occupation, medical history, and specific interventions administered—would provide a richer, more comprehensive analysis of treatment outcomes. Capturing and systematically analyzing EEG data from each session could offer valuable insights into real-time neurophysiological changes and further validate subjective reports. Additionally, exploring synergistic effects by stacking NGBB with complementary modalities such as oxygen therapies, neuromuscular somatic stretching, neurofeedback, regenerative medicine, and neurotropic, adaptogenic, and/or entheogenic supplementation protocols could enhance neuroplasticity, optimize recovery, and improve long-term outcomes. Future studies should investigate how integrative, multimodal approaches could amplify the benefits of NGBB, offering more personalized and effective therapeutic strategies for neurological and psychological rehabilitation.

5.3. Considerations for Future Research

An ongoing pilot study at VA Boston, funded by a \$230,000 Small Projects in Rehabilitation Research (SPiRE) grant, is evaluating the feasibility and effectiveness of LIP-tES for managing photosensitivity in veterans with mild traumatic brain injury (mTBI). LIP-tES is a noninvasive neurophysiological stimulation of the cer-

erebral cortex. Instead of using magnetic fields as is seen in transcranial magnetic stimulation (TMS), varying pulsations of microelectrical currents are applied, which are so small that they are not perceptible to the individual. These microelectrical currents are estimated to be approximately three picowatts (*i.e.*, three trillionths of one watt).

The study, which is currently recruiting participants on ClinicalTrials.gov, incorporates resting-state MRI scans to assess neurophysiological changes following the intervention, with an estimated completion date of November 2025. Based on preliminary data, anecdotal reports, and observed improvements, Neurogen™ technology has demonstrated promise in managing photosensitivity, post-concussion symptoms (including memory, concentration, and irritability issues), and headaches. If validated, this modality could reduce reliance on medication and enhance the quality of life for veterans suffering from neurological impairments. With these promising applications, further research into targeted neurological rehabilitation, post-TBI symptom management, and broader clinical applications is warranted.

To further establish the efficacy of NGBB, future research should prioritize randomized, double-blind, placebo-controlled trials to rule out nonspecific treatment effects and confirm the direct neurological impact of the intervention. Additionally, longitudinal studies spanning 6 to 12 months would help assess the sustainability of therapeutic benefits and determine whether repeated sessions lead to cumulative improvements in brain function and symptom relief.

Incorporating objective biomarkers such as functional MRI (fMRI), heart rate variability (HRV), salivary cortisol levels, and quantitative EEG (qEEG) data would provide valuable physiological evidence of neurobiological changes induced by NGBB. QEEG sampling in particular could help validate the modality's effects on brainwave normalization, neural connectivity, and neuroplastic adaptations over time. This would help bridge the gap between subjective self-reports and objective neurological improvements, reinforcing the scientific foundation of this modality.

Further research should also investigate potential synergies between NGBB and other evidence-based interventions, such as cognitive-behavioral therapy (CBT), mindfulness practices, biofeedback, or structured exercise regimens. A multimodal approach could enhance therapeutic outcomes, particularly for individuals with complex neurological and psychological conditions.

Moreover, broadening research efforts to include diverse populations—such as civilians, first responders, and individuals with neurodegenerative diseases—would provide insight into the broader applicability of NGBB beyond the veteran community. Special consideration should also be given to special-needs populations, including individuals with autism spectrum disorder (ASD), developmental delays, and chronic conditions that have been otherwise resistant to conventional treatment. The potential for NGBB to improve self-regulation, executive function, and sensory processing in ASD is particularly promising, given its passive and

non-invasive nature. Additionally, research into chronic pain conditions, autoimmune disorders, and treatment-resistant neurological conditions could further demonstrate NGBB's versatility as a neurotherapeutic intervention.

Future research on NGBB and LIP-tES could also integrate the Eight-Circuit Model of Consciousness (EMC) to investigate its impact on neuroplasticity, cognitive flexibility, and subjective well-being. The EMC identifies eight "circuits" or dimensions of consciousness--the lower four circuits relate to typical stages of development throughout the human lifespan, and the upper circuits map transpersonal and psychospiritual states [18] [19]. A multi-stage research framework is recommended, beginning with baseline neurophysiological mapping using qEEG, fMRI, and HRV to evaluate pre- and post-treatment changes in brain activity. The initial research stage would examine NGBB's effects on lower circuits (survival, emotional regulation, cognitive structuring), hypothesizing improved neural coherence and reduced dysregulation. Subsequent phases would correlate biometric data with subjective experiences, tracking shifts in sensory perception, behavioral adaptability, and emotional resilience. Long-term studies would assess the persistence of neuroplastic changes, while broader clinical applications would explore NGBB's efficacy in TBI, PTSD, ASD, neurodegenerative diseases, and veterinary neuromodulation. By combining biometric analysis with consciousness research, this interdisciplinary model could position NGBB as a transformative tool in neurotherapeutic interventions. Future considerations for experimental research protocols and facilities include evaluating the efficacy of noninvasive "stacks" of modalities (e.g., oxygen therapies, far-infrared sauna [FIR], microcurrent, somatic therapies, and the integration of micro-dose entheogens such as psilocybin and lion's mane for their neurotropic effects). Notably, anecdotal reports suggest that NGBB has benefitted animals, including horses and dogs, raising intriguing possibilities for its application in veterinary medicine and neurological rehabilitation for non-human species. As further consideration, a future facility could be designed that implements the Eight-Circuit Model (ECM) [18]-[19]. Drs. Rachel Turetzky and Douglas Wingate (personal communication, February 9, 2025) of 8-Circuit Ascension/The Institute of Applied Metaprogramming have proposed a facility design in which there are eight different metaprogramming/re-imprinting rooms that each address a different state of consciousness as outlined by the ECM. Kasian, Turetzky, and Wingate [18] discuss how ECM relates to mind-body health and how neurobiomodulation may help to facilitate healing and enhancements in each of these dimensions of consciousness. Thus, a NGBB facility can be designed based on this premise to facilitate experiences relevant to each circuit to enhance and optimize the outcomes of the NGBB "stack."

Finally, an economic and healthcare systems study exploring the long-term impact of integrating NGBB into insurance reimbursement models could be transformative. Assessing its potential to reduce healthcare costs by improving neurological health through noninvasive, preventative care may provide compelling

data supporting broader accessibility and policy adoption. By emphasizing early intervention, long-term cost savings, and public health benefits, such research could pave the way for a more integrative and holistic approach to brain care within mainstream medical systems. NGBB is uniquely positioned to assist armed forces, military veterans, and civilians alike by providing cutting-edge neurological support that enhances cognitive resilience, mental well-being, and overall quality of life, particularly in addressing PTSD, traumatic brain injuries, and stress-related conditions.

6. Conclusion

NGBB offers a unique, relatively affordable modality of neurobiomodulation, offering practitioners and patients a safe and reliable, non-invasive, painless, non-pharmacological solution for a variety of common mental health challenges. The reported successes of Neurogen provide measurable improvements across a broad category of conditions, positioning itself as a valuable tool in modern healthcare. Several points are noteworthy: 1) The lack of any major adverse effects noted after the administration of thousands of neurogen sessions, 2) the high rate of positive benefits reported subjectively, and 3) quantitatively measurable improvements as reported subjectively by participants and observed by practitioners.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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